

Project Get Ready Vancouver

Recommendations

October 28, 2011



Introduction

The City of Vancouver aims to be the greenest city in the world by 2020. The recently launched Greenest City 2020 Action Plan encompasses several efforts to make the city a cleaner, healthier and energy independent place to live. As part of this initiative, Vancouver joined Project Get Ready to drive forward a strategy to make Electric Vehicles (EVs) a viable option for transportation. This strategy includes 2-year and 5-year goals to deploy charging infrastructure. This document presents the Menu of Actions recommended for the City of Vancouver to take to ensure it is EV-ready, as well as recommending deployment targets for EVs and charging infrastructure.

Background

In late 2009, the City of Vancouver approached several local academic institutions to discuss the possibility of participating in the Project Get Ready initiative taking place in major cities throughout North America. Rocky Mountain Institute (RMI) in Denver Colorado created the Project Get Ready concept and was eager to involve more cities, including Vancouver. The British Columbia Institute of Technology (BCIT) showed interest and was named Champion of Project Get Ready Vancouver.

This led to the signing of a Memorandum of Understanding (MoU) between RMI, the City of Vancouver and BCIT, which took place on May 19, 2010 at BCIT. Tripp Hyde represented RMI, Mayor Gregor Robertson represented the City of Vancouver and President Don Wright represented BCIT for the MoU signing.



Figure 1 – Photo of Memorandum of Understanding signing event for Project Get Ready Vancouver. From left to right are Tripp Hyde of RMI, BCIT President Don Wright, and Vancouver Mayor Gregor Robertson.

Key Stakeholders

The following key stakeholders participated in approximately ten Project Get Ready meetings between August 2010 and June 2011 and were instrumental in the creation of this document.

Partner City - City of Vancouver: **Brian Beck**

Champion - British Columbia Institute of Technology (BCIT): **Clay Howey**

Rocky Mountain Institute: **Ben Holland**

Vancouver Electric Vehicle Association (VEVA): **Don Chandler**

Electric Mobility Canada (EMC): **David Feldhaus**

Pembina Institute: **Katie Laufenberg**

Rapid Electric Vehicles (REV): **Sepand Saniee**

Our advisors also played important roles in several Project Get Ready meetings.

Advisors

Rocky Mountain Institute: **Tripp Hyde, Matt Mattila**

BC Hydro: **Alec Tsang**

University of BC – Transportation Infrastructure & Public Space (TIPS) Lab: **Javier Landaeta**

Big Green Island Transportation: **Jean-Michel Toriel**

Community Energy Association: **Alex Adams**

Meetings

The key stakeholders held meetings chaired by the Champion on the following dates:

- August 11, 2010 (Kickoff) @ BCIT
- September 21, 2010 @ BCIT
- October 21, 2010 @ Vancouver City Hall
- November 18, 2010 @ Vancouver City Hall
- December 7, 2010 @ Vancouver City Hall
- January 12, 2011 (Special 'Priming the Electric Pump' meeting) @ Vancouver City Hall
- February 9, 2011 @ Vancouver City Hall
- February 24, 2011 @ Vancouver City Hall
- March 18, 2011 @ Vancouver City Hall
- April 15, 2011 @ Vancouver City Hall
- April 28, 2011 @ Vancouver City Hall
- May 20, 2011 @ BCIT

In addition to these meetings, either the Champion or the Partner attended the larger Project Get Ready monthly meetings where information about EVSE, EV deployments, smart grid implications and general best practices were shared with other Partner Cities and Rocky Mountain Institute.

Menu of Actions

The following Menu of Actions is recommended by Project Get Ready Vancouver to be taken by the City of Vancouver.

Actions	Example tactics / deliverables	Applicable Locations
Strategy 1 Ensure EV charging infrastructure network at home work and on-the-go is in place to support adoption of commercially available EVs		
Adopt Project Get Ready Vancouver's Electric Vehicle Supply Equipment (EVSE) deployment targets.	<ul style="list-style-type: none"> - Number, location, types of EVSE 	Home Work 'On the go'
Publicize locations of EVSE	<ul style="list-style-type: none"> - Link with North American EVSE maps such as PlugShare - Publicize installations of EVSE via press releases and social networks - Provide parking/charging incentive for EV users 	'On the go'
Partner with private industry and BC Hydro to provide charging points in retail locations, existing parking lots and underutilized public land	<ul style="list-style-type: none"> - Research best practices and establish appropriate zoning access to public lands (e.g. car share) - Confirm that BC Hydro has a process in place to assess electrical resources where EVSE are anticipated 	'On the go'
Streamline residential and commercial permitting processes	<ul style="list-style-type: none"> - Adopt North American best practice - Training for inspectors - Offer infrastructure incentive of permit fee (e.g. - waived for the first set number of applicants or by deadline) 	Home Work 'On the go'

<p>Develop guidelines for existing MURBS with by-law and/or rule examples to enable access to power for MURB residents</p>	<ul style="list-style-type: none"> - Match these guidelines with incentives - Consider linking incentives with other building energy retrofit incentive programs 	<p>Home</p>
<p>Ensure the public charging infrastructure is “grid aware” and uses non-proprietary communications. “Grid aware” refers to EVSE that can respond to changing electrical rates(e.g. time of use), and clusters of EVSE in parking lots that are “demand response” capable.</p>	<ul style="list-style-type: none"> - Procure EVSE from vendors that support open, non-proprietary communication protocols such as ZigBee with Smart Energy Profile. - Procure EVSE from vendors that can monitor the power factor of electricity supplying a cluster of EVSE and reduce or disconnect one or more EVSE in order to protect a facility’s electrical transformer. 	<p>‘On the go’</p>
<p>Consider requiring all new fueling stations in Vancouver to have some form of alternative fuel infrastructure beyond gasoline, propane, and diesel.</p>	<ul style="list-style-type: none"> - EV charging must be one of the alternate options 	<p>‘On the go’</p>
<p>Provide level 1 charging for e-bikes and e-scooters</p>	<ul style="list-style-type: none"> - Provide outdoor-rated 110v outlets at specific bike corrals located on City property. - Partner with BC Hydro to offer financial assistance to provide outdoor-rated 110v outlets at specific bike corrals located on privately owned property. 	<p>‘On the go’</p>

Strategy 2	
Support early deployment of EVs	
Advocate for new provincial and federal government incentives as outlined by Electric Mobility Canada in their proposal titled “Driving the Rapid Adoption of Electric Vehicles in Canada”.	- Incentives for EV purchases & EVSE
Convert the City fleet to electric vehicles and participate in BC-wide pilots to help drive market demand	
Monitor & assess local demand for EVs now and over the next 10 years	- Partner with New Car Retailers Association and NGOs
Support commercial fleet adoption of EVs	- Work with Green Fleets BC to maintain the EV buyers group - Provide access to city-owned charging locations where available

Strategy 3 Integrate City electric vehicle adoption with institutes, local green business, and the public.	Example Tactic/Deliverables
Share PGR Vancouver Menu of Actions with other municipalities in Metro Vancouver.	<ul style="list-style-type: none"> - Encourage consistent EVSE mapping across Metro Vancouver
Encourage participation of local academic institutions such as BCIT, UBC and SFU for EV planning, research and implementation.	<ul style="list-style-type: none"> - Invite local academic institutions to City planning meetings. - Partner with local academic institutions for pilot and research projects. - Involve students & faculty members in EVSE implementation projects where practical.
Develop and implement a public communications plan to accelerate EV adoption.	<ul style="list-style-type: none"> - Produce communication piece on how electric vehicles “fit” into sustainable transportation - Video / social media project to interview electric vehicle owners (fleets and personal) to discuss benefits (E.g. fleet savings on maintenance, low cost fuel, no emissions, etc.) - Promote electric-assist bicycles as part of a comprehensive cycling and low carbon vehicle solution by communicating their benefits - Make city EVs and electric bikes available for display at public events. - Encourage businesses to procure EVs for public use (eg. car share, car rental agencies)
Include/favour the participation of local green business and academic institutions in EV pilots and early commercial programs	<ul style="list-style-type: none"> - Create pilot initiatives with local vendors - Consider allocating funds for procurement of local EV technologies & services - Match local business with multinational corporations and academic institutions to support pilot projects.
Establish a low carbon vehicle committee within the City of Vancouver to facilitate implementation of the above actions.	

Actions Already Undertaken by City of Vancouver & its Partners

Current moves to galvanise EV deployment and use in Vancouver:

- By the end of 2011 the City of Vancouver had three Mitsubishi iMiEVs and one Nissan Leaf in its fleet. The vehicles were for use by Parking Enforcement, the Parks Board and its general fleet.
- At the start of 2012 the City will review proposals received in response to an RFP for the purchase of 30 more electric vehicles. The EVs will replace vehicles currently at the end of their service life.
- Supporting EV car share opportunities. The local car co-op Modo has included a Nissan Leaf in their car share network to be used by both City staff and Modo members. The City has installed the electric vehicle charger to support Modo's EV deployment. The City is currently investigating how this approach may be further expanded with different car-share models.
- Amendments to the city's building regulations requires all new single-family homes and off-street bicycle storage rooms to have dedicated electric plug-in outlets¹.
- The same amendments require charging infrastructure for 20% of all parking stalls in new condo buildings¹.
- Developing and testing an EV charging network trial for homes, workplaces, and public spaces including fuel stations, community centres and parking lots, in partnership with the Federation of Canadian Municipalities, BC Hydro, BC Government, Vancouver Electric Vehicle Association and other key stakeholders.
- Leading an electric vehicle charging infrastructure pilot program² for "on the go" charging as part of a broader conservation collaborative with BC Hydro.

Early moves to catalyse EV deployment and use in Vancouver:

- Undertook negotiations to encourage all major automakers to bring their new electric vehicles to Vancouver as soon as possible.
- Owned the first Plug-in Hybrid Electric Vehicle (PHEV) deployed in a Vancouver Fleet. The vehicle was a stock Toyota Prius Hybrid with a Plug-In Conversion Module that increases the car's electrical capacity by more than ten times.
- Signing a non exclusive agreement with Mitsubishi, BC Hydro and the BC Government to test what Mitsubishi described as the world's first production-ready, highway-capable electric car to be produced in Japan. The iMiEV joined the City's fleet in November 2009 for demonstration and evaluation purposes, with a letter of thanks³ sent from the Mayor of Vancouver to the Mitsubishi factory works who built the car.
- Co-founded the BC Plug-in EV working group to develop policies and programs to support EVs.
- Worked closely with the Province of BC to encourage the establishment of a rebate framework to help defray the costs of EV and charging infrastructure purchases for organisations, institutions and the public at large. This launched in November 2010 as the Clean Energy Vehicles for British Columbia program⁴.
- In 2010 the City worked with representatives from Renault-Nissan, the Province of BC, and BC Hydro to identify opportunities to promote the use of zero-emission vehicles in Vancouver and other areas in BC. Discussions explored the establishment of charging infrastructure in Vancouver.

Targets

The Project Get Ready Vancouver stakeholders began with a target of 15% of all new vehicle sales in Vancouver to be electric by the year 2020. Accordingly, stakeholders set targets for installation of charging infrastructure for 2 year and 5 year time horizons. Initially planned targets included a 10 year time horizon, but the group agreed that predictions that far out are not realistic and recommend that the City of Vancouver periodically revisit the 2 and 5 year targets as EV adoption rates become more apparent over the shorter time horizons.

It is anticipated 10 publicly available level 2 charging stations (EVSE) will be available by the end of 2011 in the City of Vancouver. The 2 year target (end of 2013) is for 150 public level 2 EVSE to be available. The 5 year target (end of 2016) is for 275 public level 2 EVSE.

Target Year	Level 2 EVSE
2013	150
2016	275

Table 1 - Publicly available level 2 EVSE targets for the City of Vancouver.

Project Get Ready Vancouver recommends that the City of Vancouver revisit these targets every two years at minimum.

Definitions

BCIT – British Columbia Institute of Technology.

BEV – Battery electric vehicle.

CoV – City of Vancouver.

EMC – Electric Mobility Canada.

EV – Electric vehicle.

EVSE – Electric vehicle supply equipment. Also known as an EV charging station.

ICE – Internal combustion engine. Also vehicle powered by a conventional internal combustion engine.

MURB – Multi Unit Residential Building. Typically, these are apartments or condominiums.

NGO – Non Government Organization.

PGR – Project Get Ready.

PHEV – Plug-in hybrid electric vehicle. A hybrid vehicle combining an internal combustion engine with battery electric vehicle technology.

RFP – Request for Proposal

UBC – University of British Columbia.

Notes

¹ Sustainability website, City of Vancouver, <http://vancouver.ca/sustainability/EVcharging.htm>, 2009

² EasyPark website, Go Green, <http://www.easypark.ca/about-easypark/parking-programs/go-green.aspx>, 2010.

³ Copy of letter on Sustainability website, City of Vancouver, <http://vancouver.ca/sustainability/documents/VancouverMayorLetteriMieVproductionworkers20091201.pdf>, 2009.

⁴ Clean Energy Vehicles for British Columbia website, <http://www.cevforbc.ca/>, 2010.